

FIRST AMENDMENT

CLAIMS

1. (Amended) 1. A substrate processing apparatus comprising:

a rotary workpiece-holding means for holding and rotating a substrate;

a plurality of processing liquid pouring nozzles for pouring processing liquids on a surface of the substrate held by the rotary workpiece-holding means;

a nozzle-holding means for holding the processing liquid pouring nozzles at their home positions beside the rotary workpiece-holding means; and

a nozzle carrying means for detachably gripping desired one of the processing liquid pouring nozzles held on the nozzle-holding means, and carrying the desired processing liquid pouring nozzle to a working position above the substrate;

wherein the processing liquid pouring nozzles are held in alignment with straight lines extending between the center of the rotary workpiece-holding means about which the rotary workpiece-holding means rotates and a plurality of nozzle holding openings formed at suitable intervals in the nozzle-holding means, respectively, flexible supply tubes connecting the processing liquid pouring nozzles to processing liquid sources are arranged on extensions of the straight lines, respectively, and each processing liquid pouring nozzle and the supply tube connected to the processing liquid pouring nozzle move along the straight line when the nozzle carrying means carries the processing liquid pouring nozzle.

2. (Amended) The substrate processing apparatus according to claim 1, wherein each of the processing liquid pouring nozzles has a block-shaped nozzle head connected to the supply tube, and a nozzle tip attached to the nozzle head; and

the nozzle-holding means is provided with angular position determining walls disposed adjacently to the nozzle holding openings such that sides of the nozzle heads of the processing liquid pouring nozzles are contiguous with the angular position determining walls, respectively.

3. The substrate processing apparatus according to claim 1, wherein the nozzle-holding means includes horizontal movement inhibiting members that engage with the opposite side surfaces of the processing liquid pouring nozzles, and each of the processing liquid pouring nozzles has vertical movement inhibiting projections that engage with the opposite ends of the horizontal movement inhibiting member.

4. The substrate processing apparatus according to claim 3, wherein the horizontal movement inhibiting members are provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in place, and the processing liquid pouring nozzles are provided with plates at positions respectively corresponding to the attractive fixating means.

5. (Amended) The substrate processing apparatus according to claim 1, wherein the nozzle carrying means is movable in optional directions in a horizontal plane parallel to the surface of the substrate and in vertical directions.

6. The substrate processing apparatus according to claim 1, wherein the processing liquid pouring nozzles are provided in their upper surfaces with a gripping recess with which a gripper included in the nozzle carrying means is able to engage, and a positioning recess with which a positioning pin attached to the nozzle carrying means at a position adjacent to the gripper is able to engage.

7. The substrate processing apparatus according to claim 6, wherein the gripping recesses and the positioning recesses of the processing liquid pouring nozzles are formed such that lines connecting the gripping recesses and the

positioning recesses are parallel to each other.

8. The substrate processing apparatus according to claim 1, wherein a solvent vapor atmosphere creating space in which a solvent is stored and a solvent vapor atmosphere is produced is formed in the nozzle-holding means so as to communicate with the nozzle holding openings of the nozzle-holding means, the lower end of a drain line connected to the nozzle holding openings and extending downward is disposed in a sump formed in the bottom wall of a drain/exhaust duct, and drained liquid flowing through the drain line and overflowing the sump is discharged.

9. The substrate processing apparatus according to claim 8, wherein the drain/exhaust duct is connected to a discharge port formed in the bottom of a vessel surrounding a space extending around and under the rotary workpiece-holding means, and the bottom of the drain/exhaust passage is sloped.

10. (Added) The substrate processing apparatus according to claim 1, wherein the nozzle-holding means is provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in a substantially radial arrangement.

11. (Added) A substrate processing apparatus comprising:

- a rotary holding means for holding and rotating a substrate to be processed;

- a plurality of processing liquid pouring nozzles for pouring processing liquids on a surface of the substrate held by the rotary holding means;

- a nozzle-holding means for holding the processing liquid pouring nozzles at their home positions beside the rotary holding means in a substantially radial arrangement; and

- a nozzle carrying means for detachably gripping desired one of the processing liquid pouring nozzles held on the nozzle-holding means, and carrying the desired

processing liquid pouring nozzle to a working position above the substrate;

wherein the nozzle carrying means includes a gripper for gripping the processing liquid pouring nozzle, and a positioning pin disposed near the gripper; and

each of the processing liquid pouring nozzle has a block-shaped nozzle head connected to a processing liquid supply tube and provided in its top surface with a gripper receiving hole in which the gripper of the nozzle carrying means engages detachably and a positioning hole formed such that the positioning pin of the nozzle carrying means engages when the gripper engages in the gripper receiving hole.

12. (Added) The substrate processing apparatus according to claim 11, wherein the gripper and the positioning pin are arranged on a straight line, the gripper receiving hole and the positioning hole of each processing liquid pouring nozzle are arranged on a straight line, the straight lines on which the respective gripper receiving holes and the respective positioning holes of the processing liquid pouring nozzles are extended parallel to each other at predetermined intervals when the processing liquid pouring nozzles are held at the home positions in the substantially radial arrangement on the holding means, the respective positions of the positioning holes with respect to the corresponding gripper receiving holes of the processing liquid pouring nozzles are different from each other, and the positioning pin of the nozzle carrying means is able to engage in the positioning hole of any one of the processing liquid pouring nozzles.

13. (Added) The substrate processing apparatus according to claim 11, wherein the gripper capable of engaging in the gripper receiving hole has a cylindrical body provided in its lower part with a plurality of radial through holes, and a plurality of spherical members placed in the radial through holes so as to be protruded from and retracted into the radial through holes, respectively.